

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background

1. Name of proposed project, if applicable:

South SPAR Reservoir and Pump Station Project

2. Name of applicant:

City of Issaquah

3. Address and phone number of applicant and contact person:

*Tony Nguyen, Engineer
City of Issaquah, Public Works Department
1775 12th Avenue NW
P.O. Box 1307
Issaquah, WA 98027*

4. Date checklist prepared:

Prepared: February 21, 2018 Revised: February 5, 2021

5. Agency requesting checklist:

City of Issaquah

6. Proposed timing or schedule (including phasing, if applicable):

*Construction Start date: May 2021
Construction End date: October 2022*

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

In the future, a separate project would propose to construct a water reservoir in proximity to the project that would provide additional water storage needed to meet anticipated future growth in the central Issaquah area.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

- *South SPAR Booster Pump Station Critical Areas Report and Mitigation Plan (ESA, 2019)*
- *SPAR Reservoir and Pump Station – Biological Evaluation Letter of “No Effect” (ESA, 2018)*
- *Interstate 90(I-90) – City of Issaquah SPAR Reservoir and Pump Station Break in Access, Section 106 of the National Historic Preservation Act (NHPA) No Potential to Cause Effect Recommendation (WSDOT, 2018a)*
- *City of Issaquah Access Break SPAR Reservoir and Pump Station – Environmental Justice Determination (WSDOT, 2018b)*
- *City of Issaquah Land Use Permit Application (City of Issaquah, 2018)*
- *Response to City of Issaquah Community Planning and Development Comments on SPAR Permit Applications (City of Issaquah Public Works, 2020)*
- *Geotechnical Engineering Services and Critical Areas Evaluation, South SPAR Zone 297 Reservoir, Booster Pump Station and Water Line, Issaquah (King County), Washington (Icicle Creek Engineers, 28 February 2017)*
- *Report Addendum, Geotechnical Engineering Services, Proposed South SPAR Booster Pump Station Interstate 90 Sunset Interchange Area, Issaquah, Washington (Icicle Creek Engineers, 11 October, 2019)*

- *Revised Report, Geotechnical Engineering Services, Proposed South SPAR Pipelines, WSDOT Wall RW15, RW16, RW14 and the Pedestrian Tunnel, Interstate 90 Sunset Interchange Area, Issaquah, Washington, April 20, 2020*
- *Report Addendum, Critical Areas Evaluation, Proposed South SPAR Booster Pump Station and 297/520 Zone water Lines, Interstate 90 Sunset Interchange Area, Issaquah, Washington (Icicle Creek Engineers, 22 January 2021)*
- *Stormwater Site Plan. City of Issaquah SPAR Booster Pump Station (Kennedy Jenks, 30 November 2020)*

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No pending applications or government approvals are known at this time.

10. List any government approvals or permits that will be needed for your proposal, if known.

- *Washington State Department of Ecology National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit*
- *City of Issaquah Critical Areas Review*
- *City of Issaquah Building Permit*
- *City of Issaquah Land Use Permit*
- *Washington State Department of Transportation (WSDOT) and Federal Highway Administration Washington Division (FHWA) approvals for work within I-90 Limited Access*

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The City of Issaquah Public Works Department (City) is proposing to construct a drinking water booster pump station (BPS) and approximately 8,000 linear feet of water related water transmission lines (hereinafter referred to as pipelines) within the City of Issaquah and within a King County jurisdictional inholding just north of Interstate 90 (I-90) (Figure 1). The project will require the City of Issaquah to acquire two land parcels (Parcel Numbers 272406-9126 and 527910-0850) currently owned by the Washington State Department of Transportation (WSDOT). The proposed project will provide redundant facilities to move drinking water to the Issaquah Highlands (Highlands), including Swedish Hospital, which serves as a critical care facility, as well as over 5,000 residents. Currently, there is only one water source to the Highlands.).

In the western portion of the pipeline, the project will construct two, twelve-inch diameter potable water lines entirely under the existing trail alignment. These pipes will convey water to the pump station from the central part of the City (Valley 297 Zone) and the regional supply pipeline.

In the eastern portion, a single twelve-inch diameter potable water line will convey water from the new pump station to the Issaquah Highlands. It will be constructed almost entirely under existing trail, sidewalk, or existing paved road (Highlands Park Drive) with a very short portion (approximately 300 linear feet)

located outside of the trail alignment and behind retaining walls. Regardless of location, a 4 to 5-foot-deep trench would be constructed and the pipes placed on pipe bedding and backfilled with pipe zone backfill and trench backfill. The pavement would then be replaced or resurfaced. Currently unpaved areas will be revegetated with native vegetation following backfilling.

The BPS includes a 1,140 square foot wood-framed building, three booster pumps, electrical panels, a chlorine analyzer, trench and pipe drains, a dehumidifier, and an exhaust fan. The building will be surrounded by a 4.5-foot-wide concrete sidewalk with an additional asphalt apron/parking area extending approximately 15-feet from the sidewalk. An 8-foot high chain-link fence with several gates will be constructed around the perimeter of the site.

The project will involve construction of an access road between the Issaquah-Preston Trail and the proposed pump station, and placement of a total of four water lines under the access road, including three 12-inch potable water lines and one 16-inch overflow pipe. In addition, a fiber optic line and four electrical conduits will be constructed under the access road.

The majority of the access road will be 15.5-feet-wide and constructed of 4-inch deep hot mix asphalt pavement placed over 2-inches of crushed surfacing top course (CSTC), which in turn is constructed on 12-inches of compacted gravel base. The road would be constructed over an existing unpaved gravel road. Stormwater from the upper drainage area (9,800 sf) would follow the existing natural drainage path and flow to wetlands areas to the east. The lower drainage area (8,700 sf) will flow to existing storm drain system along the Issaquah-Preston trail and discharge to an existing storm water detention pond. No stormwater from impervious surfaces will be infiltrated or dispersed upgradient of Steep Slope or known inactive landslide areas.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The project is located north of I-90 and west of Highlands Drive NE between SE 74th Street and NE Discovery Drive, within the City of Issaquah and unincorporated King County (Figure 2). Much of the pipeline route is within/adjacent to the Issaquah-Preston non-motorized trail. The entire project is located within the south half of Section 27 of Township 24 North, Range 6 East, Willamette Meridian (WM).

The proposed pump station is within approximately 400 feet of I-90, while the proposed western portion of the pipeline is within 50 feet of the Interstate or onramp, or Highland Drive NE (Figure 1). The project is bounded by SE 74th Street, the Issaquah-Preston trail to the southwest, and Highlands Drive NE to the east.

In addition, the project area for the proposed project is defined as 300 feet from the pump station, access road, and pipeline and does not extend across I-90.

B. Environmental Elements

1. Earth

a. General description of the site:

(underline): Flat, rolling, hilly, steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)?

Pump Station Site - The proposed Pump Station site is relatively level to gently sloping at about Elevation 244 feet with an abrupt break to the steep slope area (more than 40 percent grade) about 30-feet west of the proposed Pump Station structure. This steep slope descends about 65 feet from the Pump Station to the top of Wall RW16, which further descends 20 feet to the Issaquah-Preston Trail (36-foot wide corridor) paralleled at the downslope edge by WSDOT Wall RW15.

297/542 Zone and 720 Zone Water Lines - Engineered cut slopes locally parallel the alignment of the Water Lines. These cut slopes are up to about 10-feet high, 100-percent grade and are vegetated with brush. These cut slopes have generally performed well, with minimal raveling or erosion observed. One larger cut slope parallels the alignment adjacent to Highlands Drive. This slope is about 175-feet high and is inclined up to about 60-percent grade, with benches excavated into the slope to improve drainage. The face of the slope had sloughed in places, leaving bare soil scours which had subsequently been repaired by filling the scours with quarry spalls. The Engineered Slope is surfaced with grass and occasional young coniferous and deciduous trees.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

Two surficial (extending to a depth of about 60 inches soil types are mapped by the Natural Resource Conservation Service (NRCS) within the project area; Everett very gravelly sandy loam, 0 to 8 percent slopes comprise the western portion of the most of the study along the Issaquah-Preston Trail, while the majority of the project area is mapped as Alderwood and Kitsap soils, very steep (NRCS, 2016). Neither soil type is classified as hydric (USDA, 2015).

Older Sediments underlie the surficial soils across a majority of the project area. Older Sediments typically consist of medium dense to very dense (typically dense to very dense) sand or gravel with variable amounts of silt and occasional cobbles and hard silt, clayey silt and silty clay with occasional thin layers of fine sand, silt with gravel.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

The pump station is located along the southeast side of a gravel pit that was used as a borrow site during the construction of Interstate 90 and was abandoned in May 1971. In 1972, a small landslide occurred below the gravel pit site downhill from the proposed Pump Station site. It was documented, but not substantiated, that WSDOT install horizontal drain in 2003 to stabilize this area.

In 2001, improvements to the Sunset Interchange were occurring along with the construction of Highlands Drive. This modification required widening the westbound on-ramp to I-90 with cuts into

the hillside downhill from the proposed Pump Station site. In early 2001, a landslide occurred on the slope above the proposed pedestrian trail in the area downhill of the proposed Pump Station site. Numerous test borings and test pits were completed to evaluate the landslide and the method for stabilization. Considerable study and analysis resulted in the design of a retaining wall to stabilize the identified unstable area. Also, an interceptor drain, 20-feet deep, was installed to lower the groundwater level.

Also In the early 2000s, up to 20 feet of fill was placed in the former gravel pit area. The fill was reportedly to be set back at least 50 feet from the top of the steep slope to maintain stability.

In January 2004, a landslide (referred to as the “Camp Creek Landslide”) occurred north of the alignment of the proposed 742 Zone water lines. The landslide ran out across the alignment and into the westbound lanes of Interstate 90. The cause of the landslide was attributed to excessive infiltration of stormwater in the upland areas. This infiltration of stormwater in the upland areas was eliminated.

- e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

The project will require excavation of approximately 1,300 cubic yards (CY) of soil to facilitate construction of the access road, BPS building and parking areas, and trenching for utilities and pipelines. Approximately 152 CY of fill will be placed in the project area, including concrete/asphalt for the proposed access road, BPS building, and parking areas. All fill material will be imported from an approved commercial source and excess excavated materials may be partially re-used as fill material and/or be hauled offsite and disposed of at a licensed facility.

Project construction will disturb approximately 174,240 SF (4 acres) of land within the project area.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Soil erosion could occur as a result of clearing and grading during project construction, primarily during precipitation events. However, appropriate erosion control best management practices (BMPs) will be utilized during construction to minimize or eliminate sediment runoff (See 1.h below).

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

The project will result in a net increase of approximately 20,000 SF of new impervious surface area. The road will have an average daily traffic (ADT) volume of one trip per week, and would therefore not measurably add to the amount of suspended sediment, or total or dissolved metals conveyed to the existing stormwater treatment and detention facilities (ESA, 2018).

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

BMPs are physical, structural, and/or managerial practices that can prevent or reduce the erosion and pollution of water caused by construction activities. The following mitigation measures and BMPs would be implemented during construction to minimize the potential for erosion:

- *Construction of the Project, including all staging areas, would be restricted to the project area.*
- *All debris and spoil material would be transported off-site to an appropriate disposal*

facility.

- A Stormwater Pollution Prevention Plan (SWPPP), which includes a Temporary Erosion and Sediment Control (TESC) Plan, would be required to prevent sediment transport from the project area.
- Erosion control measures could include use of silt fencing, stabilized construction entrance, and other measures as specified in the SWPPP.
- Refueling will take place more than 100 feet from surface waters.
- Other erosion control measures would be incorporated, as necessary, in accordance with City of Issaquah and Ecology requirements.

2. Air

- a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Some increased emissions can be expected during project construction (exhaust emissions from construction vehicles and equipment and fugitive dust). The mitigation listed in Section 2.c, would ensure that the effects of construction activities on air quality would be minimized.

The Project entails the construction of an access road over an existing unpaved gravel road. The road will have an average daily traffic (ADT) volume of one trip per week, and would therefore not measurably add to the amount of air emissions that will occur from project operations (ESA, 2018). The Project also entails the construction of a drinking water pump booster station and pipelines; no increases in air emissions will occur from project operations associated with these features.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

There are no known off-site sources of emissions or odor that would affect the Project.

- c. Proposed measures to reduce or control emissions or other impacts to air, if any:

BMPs to control fugitive dust and reduce equipment emissions will be implemented as needed. Measures that could be incorporated during construction to minimize impacts to air quality include:

- *Spray exposed soil and storage areas with water during dry periods.*
- *Remove particulate matter deposited on paved roads and sidewalks to reduce mud and dust; sweep and wash streets frequently to reduce emissions.*
- *Equip construction equipment with appropriate emission controls and mufflers.*
- *Reduce idling times of construction equipment and vehicles when not active.*

3. Water

- a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

The entire project is located within the 6th Field Hydrologic Code (HUC) 171100120201, the Headwaters Sammamish River basin. The project site is also located in Water Resource Inventory Area (WRIA) 8–Lake Washington/Cedar/ Sammamish Watershed.

Three streams (Streams 1,2, and 3) are located southwest of the proposed pump station in the project area (Figure 3). Both Streams 1 and 3 are Type Ns (Non-Fish Seasonal) (Class 3 stream according to City code) and Stream 2 is Type Np (Non-Fish Perennial)(Class 2 stream according to City code). Per Issaquah Municipal Code (IMC) 18.10.785, Class 2 streams require a 75-foot buffer and Class 3 streams require a 50-foot buffer.

Three wetlands (Wetlands A, B, and C) were identified within the project area during a 2017 field investigation (ESA). The following table lists the wetland category and buffer widths of wetlands within the project area per IMC 18.10.640:

Wetland Name	Class	Standard Buffer
A	Category IV	N/A*
B	Category III	75 feet
C	Category III	75 feet

**Wetland A is a Category IV wetland less than 2,500 square feet and therefore, no buffer is required per IMC 18.10.640(C).*

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Much of the pipeline will be constructed entirely under existing trail, sidewalk, or existing paved road to avoid impacts to streams and wetlands. Some project elements will occur adjacent to wetlands and streams, including the access road, pump station, and a 300 linear foot section of pipeline. These project elements will occur partly within the buffers for Wetlands B and C and Streams 2 and 3. Construction will result in a total of 23,659SF of permanent buffer impacts and 9,593 SF of temporary buffer impacts (Figures 4 and 5).

Direct impacts to wetland and stream buffers as a result of the project will be mitigated at a greater than 1:1 ratio and will include 23,982 SF of wetland and stream buffer enhancements within the existing buffers of Wetlands B and C and Stream 3, consisting of the planting of native tree and shrub species. (Figures 8 through 10). Temporary impacts to wetland and stream buffers will be also restored, including the planting of 5,569 SF of native shrub revegetation and 15,348 SF of seeding with native grass species.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

No fill or dredge material would be placed in or removed from surface water or wetlands as a result of the project.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No surface water withdrawals or diversions are necessary for project construction or operation.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No, the project does not lie within a 100-year floodplain.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No discharges of waste materials to surface waters are anticipated. BMPs will be employed to minimize the possibility of waste materials and upland sediments entering Streams 1, 2, and/or 3 during construction.

b. Ground Water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No. The Project does not involve groundwater withdrawals from wells or discharges to groundwater.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

The Project will not involve any waste discharges into the ground or groundwater.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Stormwater will be the main source of runoff. Increased stormwater runoff will result from an increase of impervious surfaces (approximately 20,000 SF total) including the access road and pump station parking area. Stormwater runoff will be managed using stormwater treatment methods in accordance with the King County Storm Water Design Manual and Issaquah Municipal Code. Stormwater from the upper drainage area (9,800 sf) follow the existing natural drainage path and flow to wetlands areas to the east. The lower drainage area (8,700 sf) will flow to existing storm drain system along the Issaquah-Preston trail. The existing drain line conveys runoff to an existing stormwater treatment and detention pond located just south of SE 74th Street. In addition, the low average daily traffic volume for the access road would not measurably add to the amount of suspended sediment, or total or dissolved metals conveyed to the existing stormwater treatment and detention facilities.

2) Could waste materials enter ground or surface waters? If so, generally describe.

BMPs (described below in 3.d) will minimize the potential for sediment and waste materials to enter streams during construction. No waste material will be discharged to ground or surface waters as a result of construction.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

The proposal is not expected to affect drainage patterns onsite or in the site vicinity.

- d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

See section c.1, above, for a discussion of stormwater control measures.

4. Plants

- a. Check the types of vegetation found on the site:

☒ deciduous tree: red alder, bigleaf maple, black cottonwood
☒ evergreen tree: Douglas fir
☒ shrubs: salmonberry, red-osier dogwood, beaked hazelnut, Himalayan blackberry, scotch broom
☐ grass:
☐ pasture
☐ crop or grain
☐ Orchards, vineyards or other permanent crops.
☒ wet soil plants: field horsetail, lady fern, common rush, other
☐ water plants:
☒ other types of vegetation: sword fern, English ivy, English holly

- b. What kind and amount of vegetation will be removed or altered?

A total of 52 trees (33 coniferous and 19 deciduous) will be removed from the project site as unavoidable impacts (Figures 6 and 7). Of these, 41 are considered significant, and are protected trees according to City code. All coniferous trees are Douglas fir, while the deciduous trees to be cleared are red alder, bigleaf maple, and cottonwood. The diameter of the individual trees ranges from 4-inch dbh to 25-inch dbh, with the vast majority of trees less than 20-inch dbh. As part of the City's acquisition of the two land parcels currently owned by WSDOT for the project, WSDOT is requiring that the tree replacement requirements of the WSDOT Roadside Policies for site restoration be implemented.

In order to meet City and WSDOT requirements for tree replacement, the project will plant a total of 310 Douglas fir trees within the project area over an approximate area of 42,000 square feet (Figures 12 through 14). This action will offset impacts from removal of 33 coniferous trees, equating to a tree replacement ratio of greater than 9:1. The 310 Douglas fir trees will be a combination of two tree sizes, 1-gallon containers and 2-gallon containers. In addition to offsetting impacts to coniferous tree species, the tree planting plan also includes planting of deciduous species to offset the unavoidable

clearing of 19 deciduous trees. Approximately 100 containers of bigleaf maple (Acer macrophyllum) will be installed on the project site, with an equal mix of 1-gallon and 2-gallon containers. The planting equates to a tree replacement ratio of greater than 5:1.

These tree replacement plantings are in addition to the wetland and stream buffer enhancement plantings for mitigating direct buffer impacts from the project..

Some areas of native grass and shrubs in the project area will be temporarily disturbed, but will be replanted in-kind with native vegetation following the completion of construction activities as described in Section B3 - Water, above.

c. List threatened and endangered species known to be on or near the site.

The Washington State Department of Natural Resources (WDNR) Natural Heritage Program (NHP) database does not indicate the presence of any threatened or endangered plant species within the project vicinity.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Installation of native plants is proposed in the Project mitigation plan and will include wetland and stream buffer enhancement within the existing buffers of Wetlands B and C and Stream 3 (Figures 8 through 10). Seeded grass restoration is proposed in other disturbed areas.

e. List all noxious weeds and invasive species known to be on or near the site.

Himalayan blackberry, Scotch broom, English ivy, and English holly all listed on the King County Noxious Weed List, have been identified in the project area.

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

X birds: songbirds

X mammals: rodents, raccoons, deer

X others: fish and aquatic organisms

b. List any threatened and endangered species known to be on or near the site.

No threatened or endangered species are known to occur on or near the project area. The closest waterbody supporting ESA-listed fish species is the East Fork Issaquah Creek located approximately 640 feet to the southwest, and the project will not directly or indirectly affect this stream.

c. Is the site part of a migration route? If so, explain:

The Puget Sound area is located within the Pacific Flyway, which is a flight corridor for migrating waterfowl and other avian fauna. The Pacific Flyway extends south from Alaska to South America. No portion of the proposed project would interfere with or alter the Pacific Flyway.

d. Proposed measures to preserve or enhance wildlife, if any:

- *Riparian vegetation removal will be minimized to the extent practicable. Clearing for the new access road will be on the west side of the existing gravel roadway, away from Stream 3 and project site wetlands. The removal of larger mature trees will be minimized to the extent practicable and such removal will be fully mitigated for by tree replanting. Any temporarily disturbed areas will be stabilized as soon as practicable and replanted with native shrubs and trees, or native hydroseed mix as appropriate.*
- *Heavy equipment will remain outside of delineated wetland boundaries and streams.*
- *Storage of equipment or materials will be located within previously disturbed area and outside sensitive areas, such as wetlands and streams.*
- *All construction will comply with Washington State Department of Ecology 2012 Stormwater Management Manual for Western Washington (SWMMWW).*
- *A Spill Prevention Control and Countermeasure plan will be in place prior to construction.*
- *Refueling of equipment will take place more than 100 feet from wetlands and streams, and other surface water features.*
- *All equipment will be staged and stored within previously disturbed areas and outside of wetlands and streams.*
- *All cleared areas will be re-vegetated with native vegetation following construction.*

e. List any invasive animal species known to be on or near the site.

Rodents (rats, mice and Eastern gray squirrel) are likely present in the project area.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electricity is the only kind of energy that will be used to meet the project's energy needs for operating components of the pump station, including the three booster pumps, chlorine analyzer, dehumidifier and an exhaust fan.

b. Would your project affect the potential use of solar energy by adjacent properties?
If so, generally describe.

The Project would not require the use of solar energy and would not affect solar energy use by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal?
List other proposed measures to reduce or control energy impacts, if any:

No energy conservation plans are necessary.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal?
If so, describe.

With any construction project there is a risk of potential construction related spills or leaks. The Project would face similar risks, but all risks would be well within the range of typical construction projects. BMPs and mitigation measures will be implemented to minimize risk. No toxic chemicals would be stored at the construction site, other than fuels and other construction related fluids. Existing information does not indicate the presence of contaminated soils within the project area.

- 1) Describe any known or possible contamination at the site from present or past uses.

No known contamination is present within the project area.

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

There are no known hazardous chemicals or conditions present within the project area that might affect the project development or design.

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

During construction, equipment will require refueling. Operation of the access road and pump station will not result in the storage, use, or production of any toxic or hazardous materials.

- 4) Describe special emergency services that might be required.

Additional emergency services are not anticipated at the site. In the unlikely event that an accident occurs, the local emergency service will respond.

- 5) Proposed measures to reduce or control environmental health hazards, if any:

As described in 7.a above, applicable measures would be followed to minimize the release of any hazardous materials, if encountered, and a Spill Prevention Control and Countermeasure plan will be approved prior to construction.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

The project is located adjacent to within 200 to 400 feet of I-90, which currently contributes noise in the area from vehicular traffic, but would not adversely affect the Project. Minor noise from vehicular traffic along area roadways and overhead airplanes are the only other noise sources in the area, and would not adversely affect the project.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

No noise receptors occur within 500 feet of the project site. Temporary noise impacts would result from equipment operation during construction. Construction hours and noise levels would comply with the City of Issaquah's noise standards, which limits construction to take place between the hours of 7:00 am and 6:00 pm Monday through Friday, and 9:00 am through 5:00 pm on Saturday. Construction is not permitted on Sundays and holidays (IMC 16.35.010). Operation noise levels would also comply with the City's noise standards.

3) Proposed measures to reduce or control noise impacts, if any:

The Project would adhere to the City of Issaquah noise standards (IMC 9.22).

8. Land and Shoreline Use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The project site is undeveloped and the area where the pump station will be located is a former gravel pit used for construction of I-90. The area was cleared and is largely dirt and quarry spall with some trees. Residential and industrial development, Swedish Hospital, I-90 and Highlands Drive NE surround the project site. The Project would not affect land use on nearby or adjacent properties.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

The site has not been used as working farmland or working forest lands. The site is within parcels owned by WSDOT and partly a former gravel pit used for construction of I-90.

- 1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

There are no working farm or forest land businesses in the project vicinity.

- c. Describe any structures on the site.

The project site is undeveloped and no structures are present.

- d. Will any structures be demolished? If so, what?

No structures are present on the site; therefore, no structures will be demolished for the Project.

- e. What is the current zoning classification of the site?

The site is currently zoned as "Community Facilities."

f. What is the current comprehensive plan designation of the site?

The current comprehensive plan designation for the site is "Community Facilities."

g. If applicable, what is the current shoreline master program designation of the site?

No portion of the proposed project is within shoreline jurisdiction. All elements are greater than 200 feet away from the East Fork of Issaquah Creek or associated wetlands, so there are no shoreline master program designations that apply.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

Neither King County nor the City of Issaquah map any wetlands or streams within the project area, however both wetland and stream features are located onsite and described in Section 3 - Water. King County does map geologic hazards (erosion hazards) in the northeastern project area, however steep slopes are present and discussed in Section B1 – Earth, above. No other critical areas are mapped on the project site by the County or the City.

i. Approximately how many people would reside or work in the completed project?

No people would reside in the completed Project. Maintenance activities by City staff would occur at/within the pump station on a weekly basis.

j. Approximately how many people would the completed project displace?

The completed Project would not displace any people.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Displacement would not occur as a result of this project; therefore, mitigation measures have not been developed.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposed project would meet the existing needs of the area. The project would provide a redundant source of water to Issaquah Highlands (Highlands), including Swedish Hospital, which serves as a critical care facility, as well as over 5,000 residents. Currently, there is only one water source to the Highlands. In the future, a separate project would propose to construct a water reservoir in proximity to the pump station that would provide additional water storage needed to meet anticipated future growth in the central Issaquah area.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

No agricultural or forest land of long-term commercial significance exists nearby; therefore, no mitigation measures are proposed.

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units would be provided by the Project.

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units will be eliminated by the Project.

- c. Proposed measures to reduce or control housing impacts, if any:

No mitigation measures are necessary.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The pump station building is the only proposed above-grade structure for the project and will be approximately 30 feet in height. The principal building materials will include masonry walls and a metal roof. The building will be surrounded by a 4.5-foot-wide concrete sidewalk with an additional asphalt apron/parking area extending approximately 15-feet from the sidewalk. An 8-foot high chain-link fence with several gates will be constructed around the perimeter of the site.

- b. What views in the immediate vicinity would be altered or obstructed?

The pump station building site will be located over 200 feet away and down a steep slope from the nearest residential development. No views will be altered or obstructed from the project.

- c. Proposed measures to reduce or control aesthetic impacts, if any:

There are no specific measures proposed to reduce or control aesthetic impacts. No significant aesthetic impacts are expected to result from the proposed project.

11. Light and Glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

No light or glare will be generated by the project.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

The project would not generate significant light or glare.

- c. What existing off-site sources of light or glare may affect your proposal?

There are no existing sources of light or glare that would impact the project.

- d. Proposed measures to reduce or control light and glare impacts, if any:

Light and glare impacts are not anticipated; therefore, mitigation measures have not been developed.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?

The Issaquah-Preston trail is located adjacent to the project and is used by pedestrians and bicyclists. No parks or other designated recreational opportunities are present in the immediate vicinity of the project area.

- b. Would the proposed project displace any existing recreational uses? If so, describe.

The proposed project could temporarily displace pedestrian and bicycle use of the Issaquah-Preston trail during portions of the 17 month construction period. However, once the project is complete recreational use would resume.

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

The proposed project will provide for temporary detours around the work area on the Issaquah-Preston trail, as provided for in a signed agreement between the City of Issaquah and King County Parks Department. No other measures are proposed.

13. Historic and cultural preservation

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

There are no aboveground buildings, structures, or sites in or near the project site that are listed in or eligible for listing in a national, state, or local preservation register (WSDOT, 2018). See Attachment A.

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

No archaeological sites, cemeteries, or traditional cultural places are recorded in or near the project site (WSDOT, 2018). A prior cultural resources survey for a majority of the proposed project area was previously completed by Northwest Archaeological Associates, Inc. in 1998 (Hudson and Nelson 1998). Hudson and Nelson (1998:21) documented two historic period archaeological sites (45KI451 and 45KI453) in the immediate vicinity of the Preston Trail. Both sites were determined not eligible for listing in the National Register of Historic Places (NRHP). See Attachment A.

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

WSDOT's December 2018 cultural resources review included a review of WSDOT GIS and DAHP WISAARD databases to identify any known cultural resources or previous cultural resources studies in the vicinity of the project location. The review also included a review of WSDOT SRView photographic documentation of the location (WSDOT, 2018). See Attachment A.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

WSDOT's December 2018 cultural resources review provides a summary of their cultural resource findings to comply with the National Historic Preservation Act. Should cultural resources be inadvertently identified during the project, the City will comply with state laws requiring the protection of cultural resources and human remains (RCW 27.53, RCW 27.44, RCW 68.50, and RCW 68.60). The City will temporarily halt work in the immediate vicinity of the identified resources and notify Department of Archaeology and Historic Preservation and Affected Tribes to negotiate mitigation and/or avoidance measures.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The proposed project can only be accessed by 1st Avenue NE at the northern end (Figure 2).

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The site vicinity is not currently served by King County Metro or Sound Transit bus lines.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

No public parking spaces are planned as a result of this project. No parking spaces will be eliminated as a result of the project.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

The project will improve an existing, gravel private access road between the Issaquah-Preston Trail and the proposed pump station. The majority of the private access road will be 15.5-foot-wide and constructed of 4-inch deep hot mix asphalt pavement placed over 2-inches of crushed surfacing top course (CSTC), which in turn is constructed on 12-inches of compacted gravel base. No improvements to public roads, streets, pedestrian, bicycle or state transportation facilities are planned as part of the project.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project would not use, nor interfere with, water, rail, or air transportation.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

The private access road will have an average daily traffic (ADT) volume of one trip per week, and would therefore not measurably add to the amount of traffic volume (ESA, 2018).

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

There are no agricultural or forest practice areas in the vicinity. The project will not affect the movement of products through the project area.

- h. Proposed measures to reduce or control transportation impacts, if any:

Since no new traffic would be generated by the completed project, no mitigation measures are proposed.

15. Public Services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

The proposed project would not result in the need for any additional public services.

- b. Proposed measures to reduce or control direct impacts on public services, if any.

Impacts to public services are not anticipated; therefore, mitigation measures have not been developed.

16. Utilities

- a. Circle utilities currently available at the site:

No utilities are currently available at the project site.

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The project proposes to construct pipelines for potable water that will convey water to the pump station from the central part of the City and the regional supply line, and to the Issaquah Highlands (Issaquah Public Works Department). A fiber optic line and four electrical conduits will also be constructed under the access road (PSE) as part of the project. There are no additional utilities proposed for the project.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee Tony Nguyen

Position and Agency/Organization Engineer - City of Issaquah

Date Submitted: 2/8/2021

D. References and Bibliography

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- WSDOT (Washington State Department of Transportation). 2018b. City of Issaquah Access Break SPAR Reservoir and Pump Station – Environmental Justice Determination. December 2018.

ATTACHMENT A

**WSDOT I-90 BREAK IN ACCESS, SECTION 106
NO POTENTIAL TO CAUSE EFFECT RECOMMENDATION**

December 13, 2018

TO: Lindsey Handel, Urban Area Engineer (King County), FHWA

FROM: Jason B. Cooper, Cultural Resources Specialist, WSDOT

RE: **Interstate 90 (I-90) – City of Issaquah SPAR Reservoir and Pump Station Break in Access, Section 106 of the National Historic Preservation Act (NHPA) No Potential to Cause Effect Recommendation**

The Washington State Department of Transportation (WSDOT) has completed a cultural resources review for the above referenced project. WSDOT recommends that the project has No Potential to Cause Effect (NPCE). WSDOT requests your review of the documentation provided, and your determination that the project indeed has No Potential to Cause Effect. Unless FHWA disagrees with WSDOT's recommendation, WSDOT will consider this letter as the completion of the compliance process for Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36CFR800.

Project Description

The City of Issaquah is seeking temporary and permanent breaks in the I-90 Limited Access area. The breaks in access are necessary for the proposed South SPAR reservoir, booster pump station, and related water transmission piping. The project will be implemented in phases. The booster pump station and related transmission pipelines will be bid in late 2019 and constructed in 2020 and 2021. The 2.5-million-gallon reservoir will be bid in the future, probably within the next 10 years. A portion of the water transmission pipelines will be installed under the Preston bike trail, which parallels I-90, and is inside the limited access area. The City will require a break in access for construction of the project and for long term operation and maintenance to the reservoir/pump station site (the pump station located outside of the limited access area would be accessed using the Preston Trail) and the pipelines. The project is subject to Section 106 of the NHPA given that FHWA must approve a break in limited access to interstate highway.

The project is located within the City of Issaquah in King County within Section XX of Township 24 North, Range 6 East (Willamette Meridian). The project is located adjacent to I-90 at Milepost (MP) 18.00.

Review and Documentation

The cultural resources review included a review of the WSDOT GIS and DAHP WISAARD databases to identify any known cultural resources or previous cultural resources studies in the vicinity of the project location. The review also included a review

of WSDOT SRView photographic documentation of the location. The majority of the proposed project area was surveyed by Northwest Archaeological Associates, Inc. in 1998 (Hudson and Nelson 1998). Hudson and Nelson (1998:21) documented two historic period archaeological sites (45KI451 and 45KI453) in the immediate vicinity of the Preston Trail. Both sites were determined not eligible for listing in the National Register of Historic Places (NRHP). The break in access locations have been previously disturbed by the construction of the Preston Trails. Ground disturbance will be limited to the existing trail system and/or areas previously surveyed by Hudson and Nelson (1998).

If this project were funded through the Federal-aid Highway Program, the project would be exempt from further Section 106 of the NHPA review pursuant to Section V of the *Second Amended Programmatic Agreement Implementing Section 106 of the National Historic Preservation Act for the Federal-aid Highway Program in Washington State Administered by the Federal Highway Administration (PA)*. Specifically, this project meets all the terms and conditions of Stipulations A-23 and A-24 of Exhibit B of the PA, which states:

A-23. Trenching or other excavation to install, replace, or repair electrical, water, sewer lines, fiber optics, telephone cable, or other utilities in areas demonstrated to have been previously disturbed by construction, fill, or prior trenching activities.

A-24. Construction staging areas or other locations proposed for temporary use during construction within demonstrated vertical and horizontal limits of previous construction or disturbance.

Therefore, WSDOT recommends that FHWA determine that this project has No Potential to Cause Effect (NPCE) to historic properties.

I certify that, to the best of my knowledge at the time of writing, the information contained in this memorandum is true and correct.

Jason B. Cooper, M.A., RPA
Cultural Resources Specialist
WSDOT Northwest Region
206.440.4525 (Office)
Jason.Cooper@wsdot.wa.gov

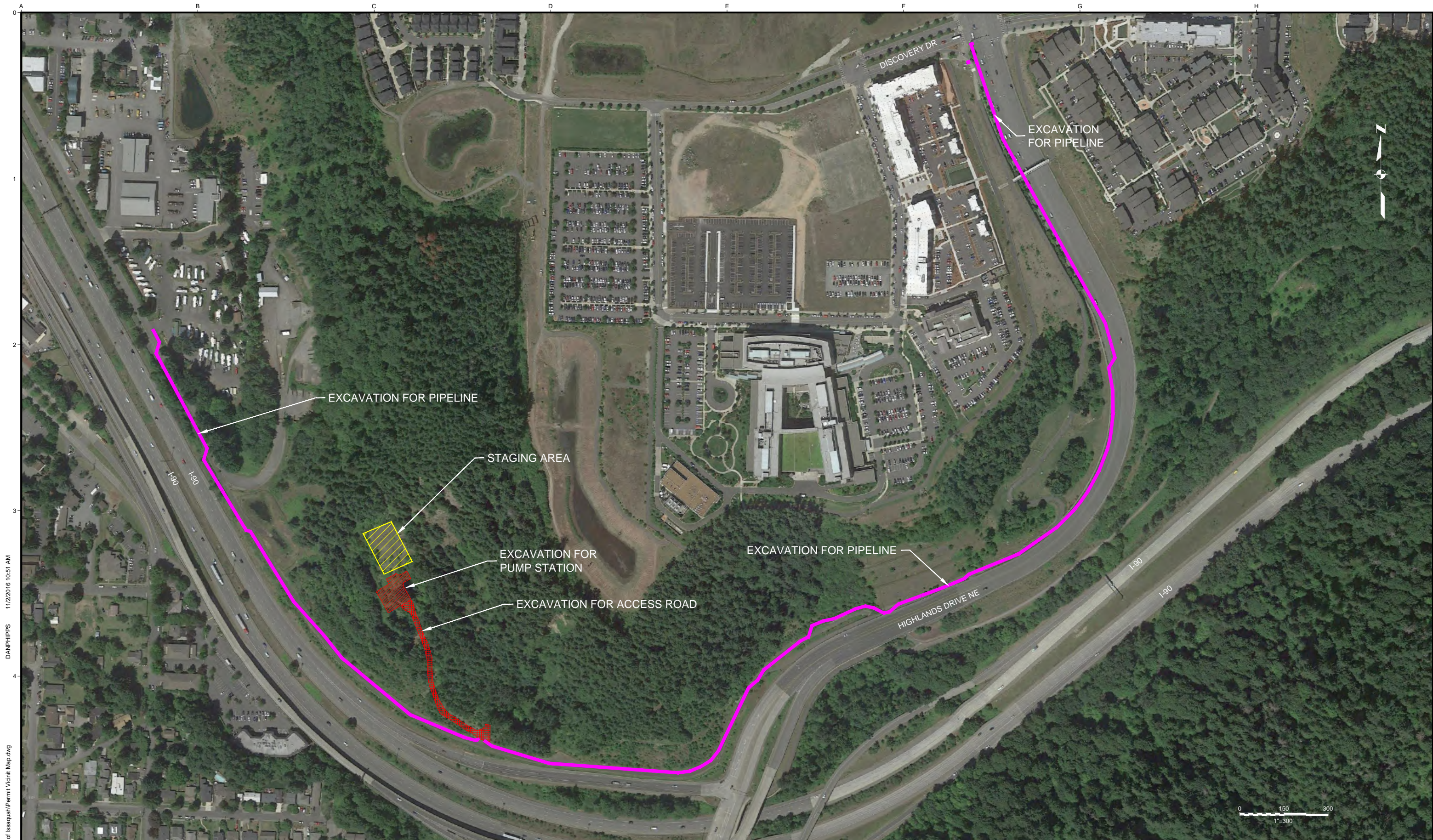
Cc: John Maas, WSDOT Compliance Services Manager, Northwest Region
Steve Shipe, WSDOT Tribal Liaison, Northwest Region

Attachment: Project Vicinity Map


References

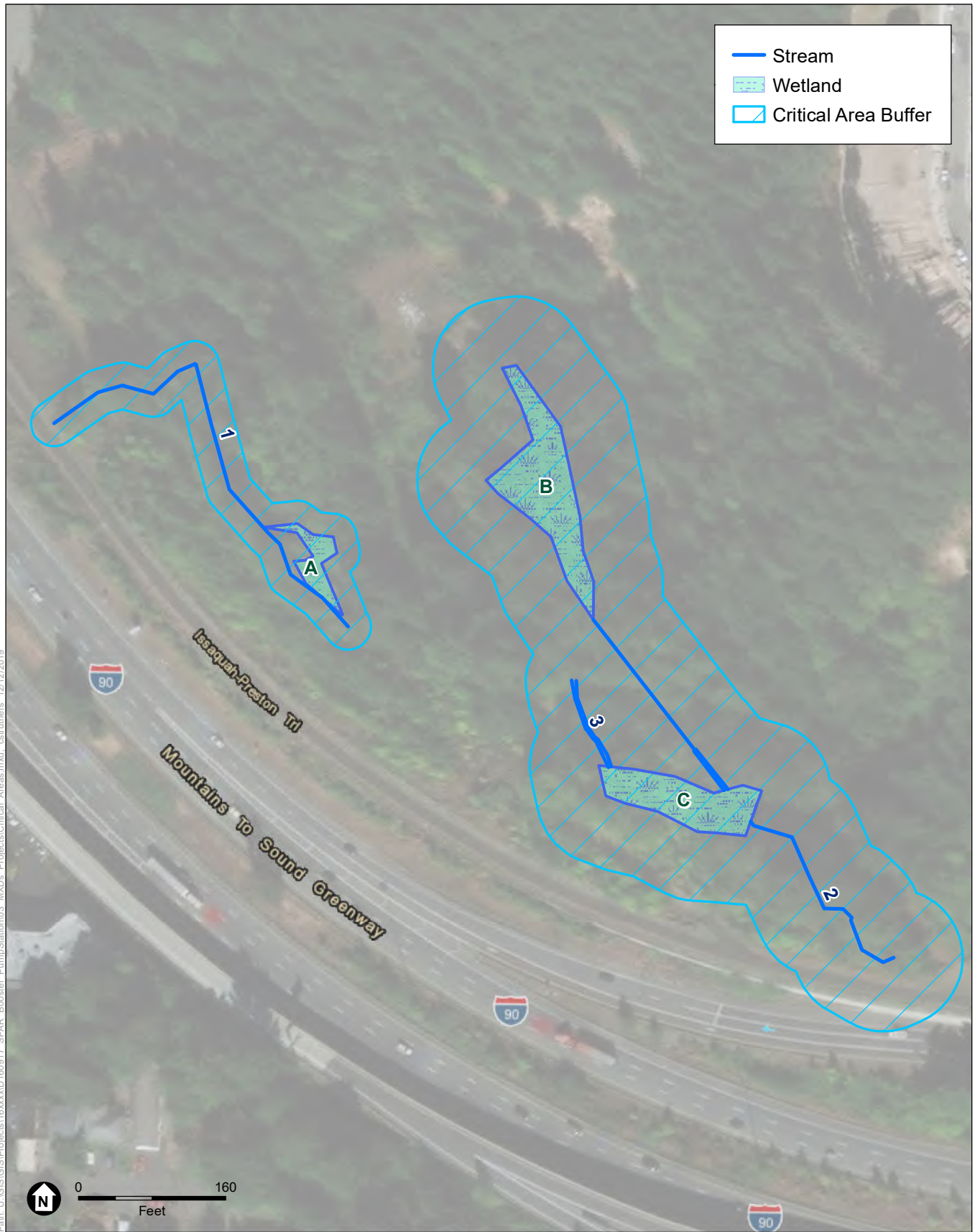
Nelson, L. and M.A. Nelson

- 1998 *Final Historical, Archaeological, and Cultural Resources Technical Report – South Sammamish Plateau Access Road and I-90 Sunset Interchange Modification EIS*. NADB Report No. 1339787. Report on file at State of Washington Department of Archaeology and Historic Preservation, Olympia.



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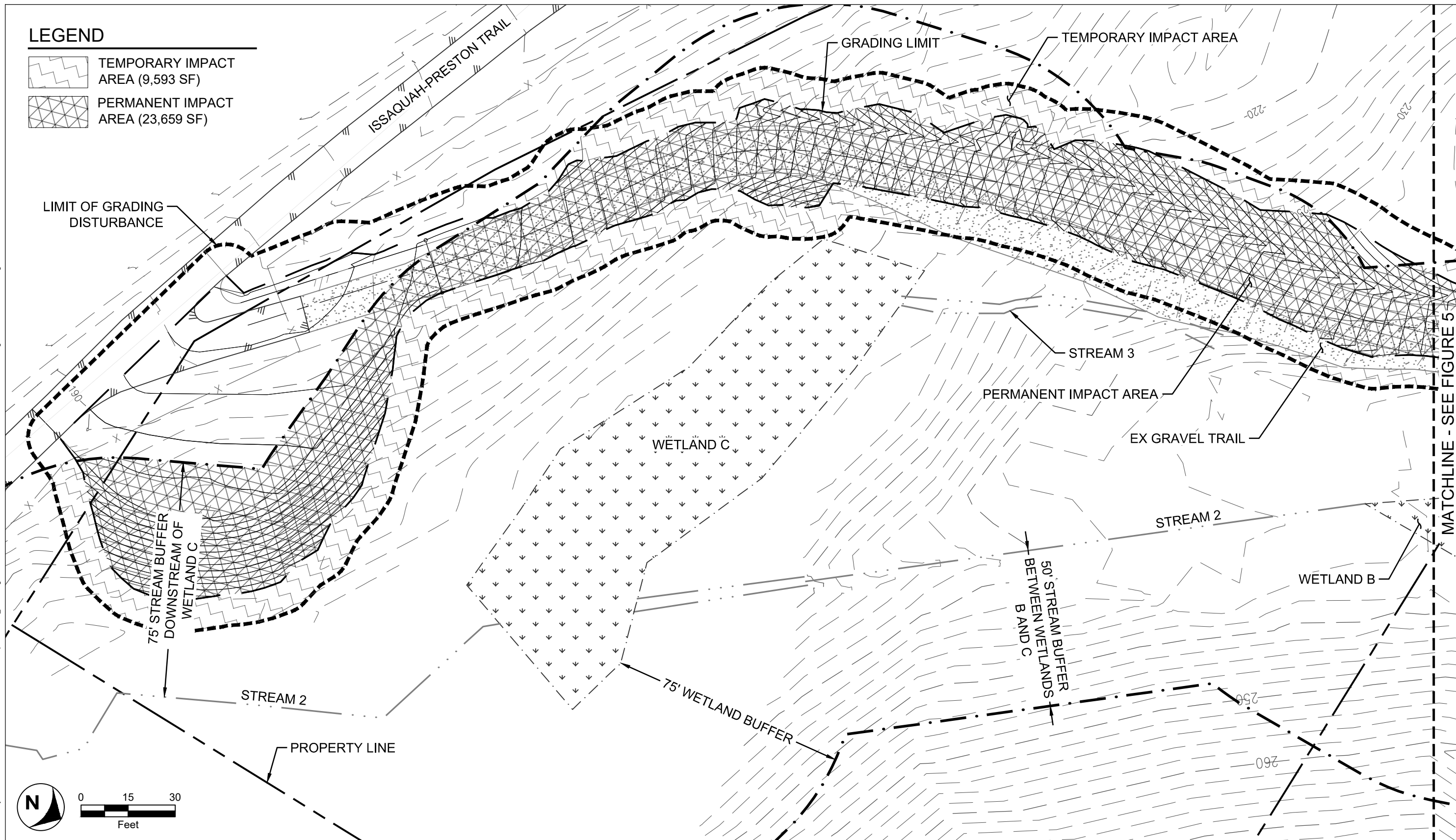


SOURCE: ESA, 2017; NAIP, 2015

S SPAR Boost Pump Station

Figure 3
Critical Areas
Issaquah, WA

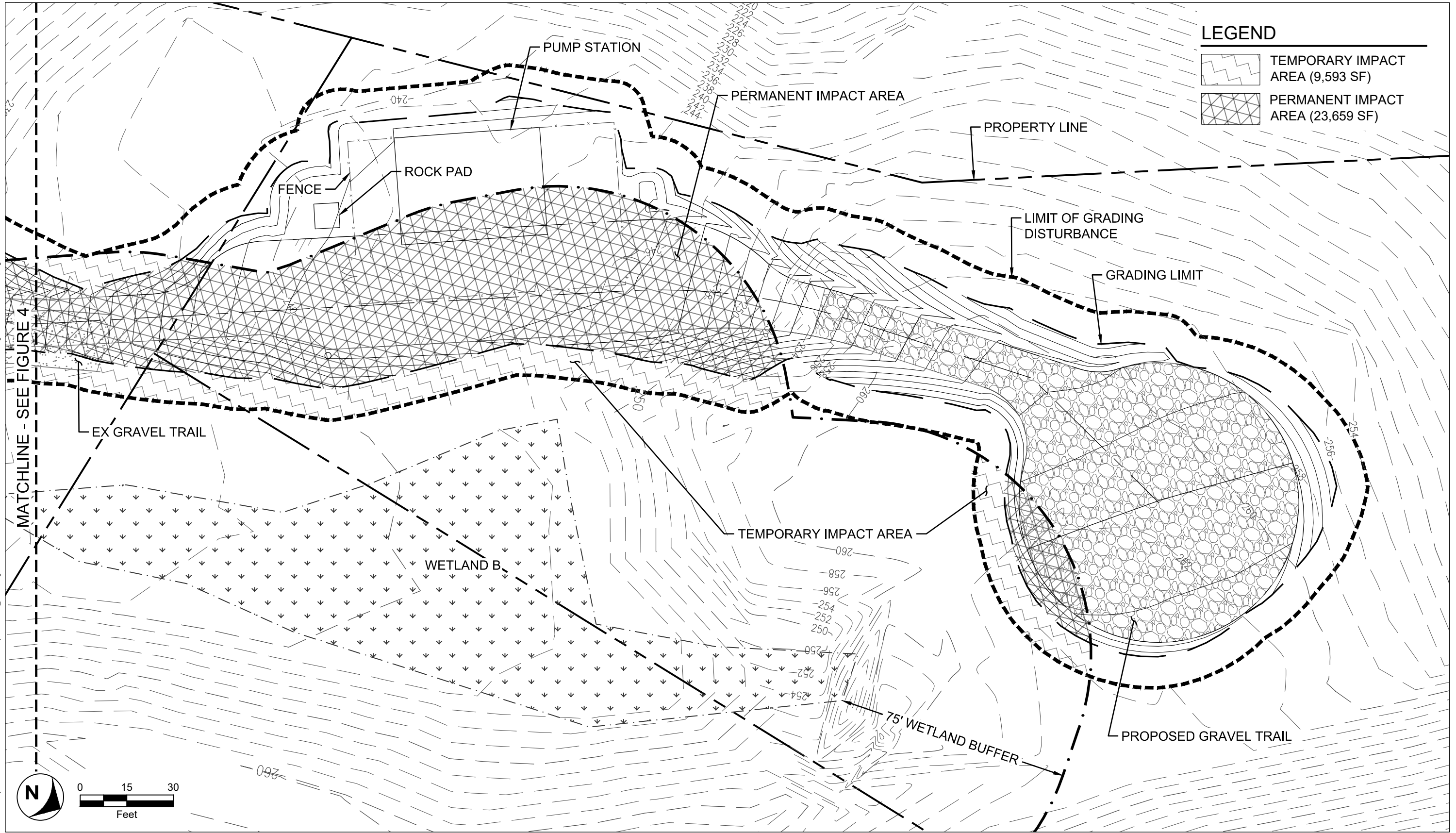
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South Issaquah Booster Pump Station (SPAR)

Figure 4
BUFFER IMPACTS TO CRITICAL
AREAS SOUTH

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South Issaquah Booster Pump Station (SPAR)

Figure 5
BUFFER IMPACTS TO CRITICAL
AREAS NORTH

LEGEND

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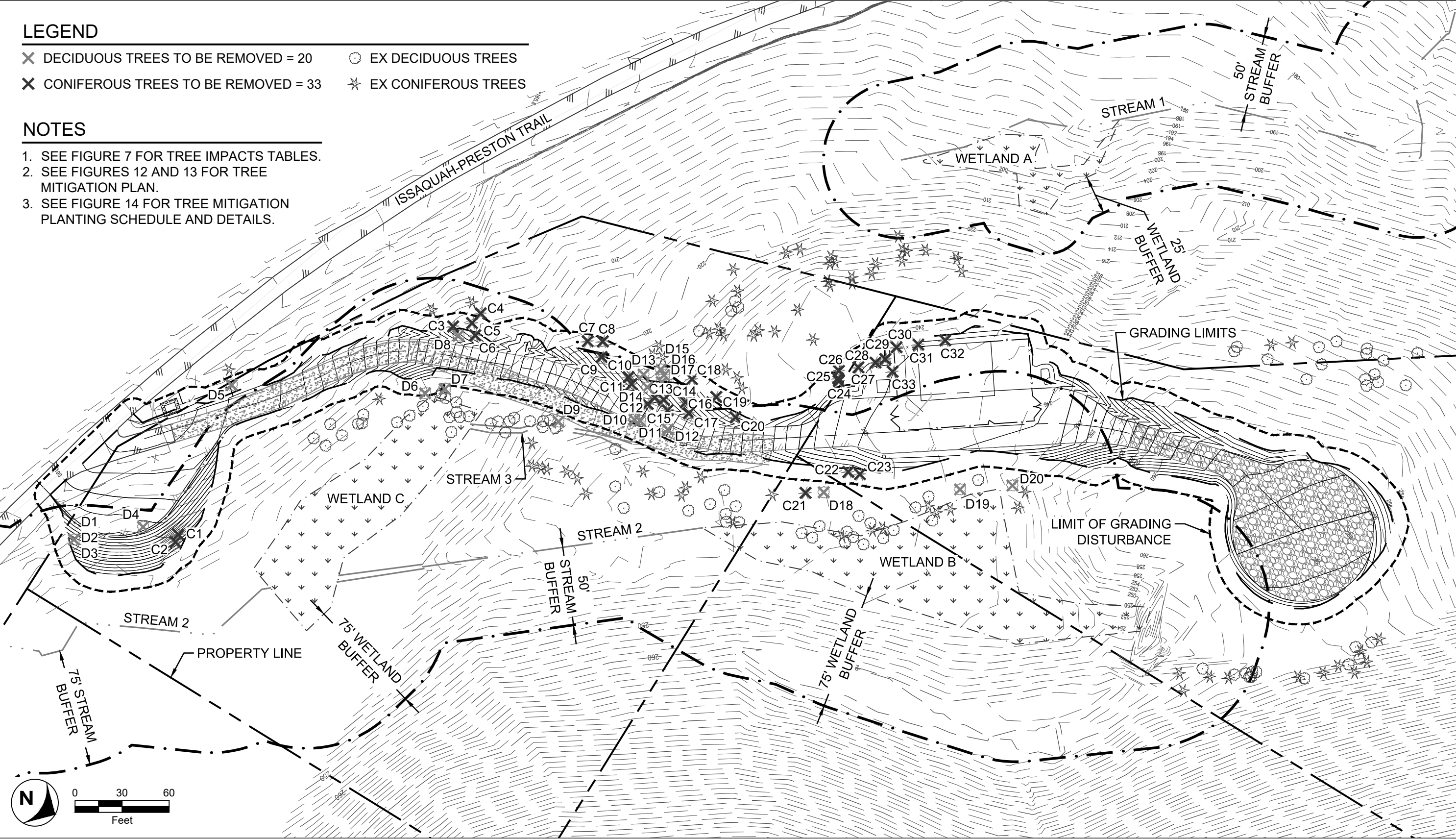
DECIDUOUS TREES TO BE REMOVED = 20
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CONIFEROUS TREES TO BE REMOVED = 33
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EX CONIFEROUS TREES

NOTES

1. SEE FIGURE 7 FOR TREE IMPACTS TABLES.
2. SEE FIGURES 12 AND 13 FOR TREE MITIGATION PLAN.
3. SEE FIGURE 14 FOR TREE MITIGATION PLANTING SCHEDULE AND DETAILS.



South Issaquah Booster Pump Station (SPAR)

Figure 6
TREE IMPACTS PLAN

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DECIDUOUS TREE REMOVAL TABLE		
TREE #	SPECIES	SIZE (DBH)
D1	BIGLEAF MAPLE	7
D2	BIGLEAF MAPLE	5
D3	BIGLEAF MAPLE	4
D4	DECIDUOUS	22
D5	ALDER	6
D6	COTTONWOOD	14
D7	COTTONWOOD	18
D8	COTTONWOOD	20
D9	ALDER	7
D10	ALDER	7
D11	ALDER	6
D12	ALDER	6
D13	COTTONWOOD	7
D14	ALDER	7
D15	COTTONWOOD	23
D16	COTTONWOOD	13
D17	COTTONWOOD	19
D18	COTTONWOOD	17
D19	ALDER	13
D20	COTTONWOOD	38
COMBINED DBH TOTAL:		259

CONIFEROUS TREE REMOVAL TABLE		
TREE #	SPECIES	SIZE (DBH)
C1	DOUGLAS FIR	13
C2	DOUGLAS FIR	9
C3	DOUGLAS FIR	9
C4	DOUGLAS FIR	13
C5	DOUGLAS FIR	7
C6	DOUGLAS FIR	10
C7	DOUGLAS FIR	17
C8	DOUGLAS FIR	16
C9	DOUGLAS FIR	15
C10	DOUGLAS FIR	6
C11	DOUGLAS FIR	14
C12	DOUGLAS FIR	9
C13	DOUGLAS FIR	13
C14	DOUGLAS FIR	6
C15	DOUGLAS FIR	8
C16	DOUGLAS FIR	17
C17	DOUGLAS FIR	8
C18	DOUGLAS FIR	6
C19	DOUGLAS FIR	10
C20	DOUGLAS FIR	19
C21	DOUGLAS FIR	18
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C23	DOUGLAS FIR	12
C24	DOUGLAS FIR	12
C25	DOUGLAS FIR	9

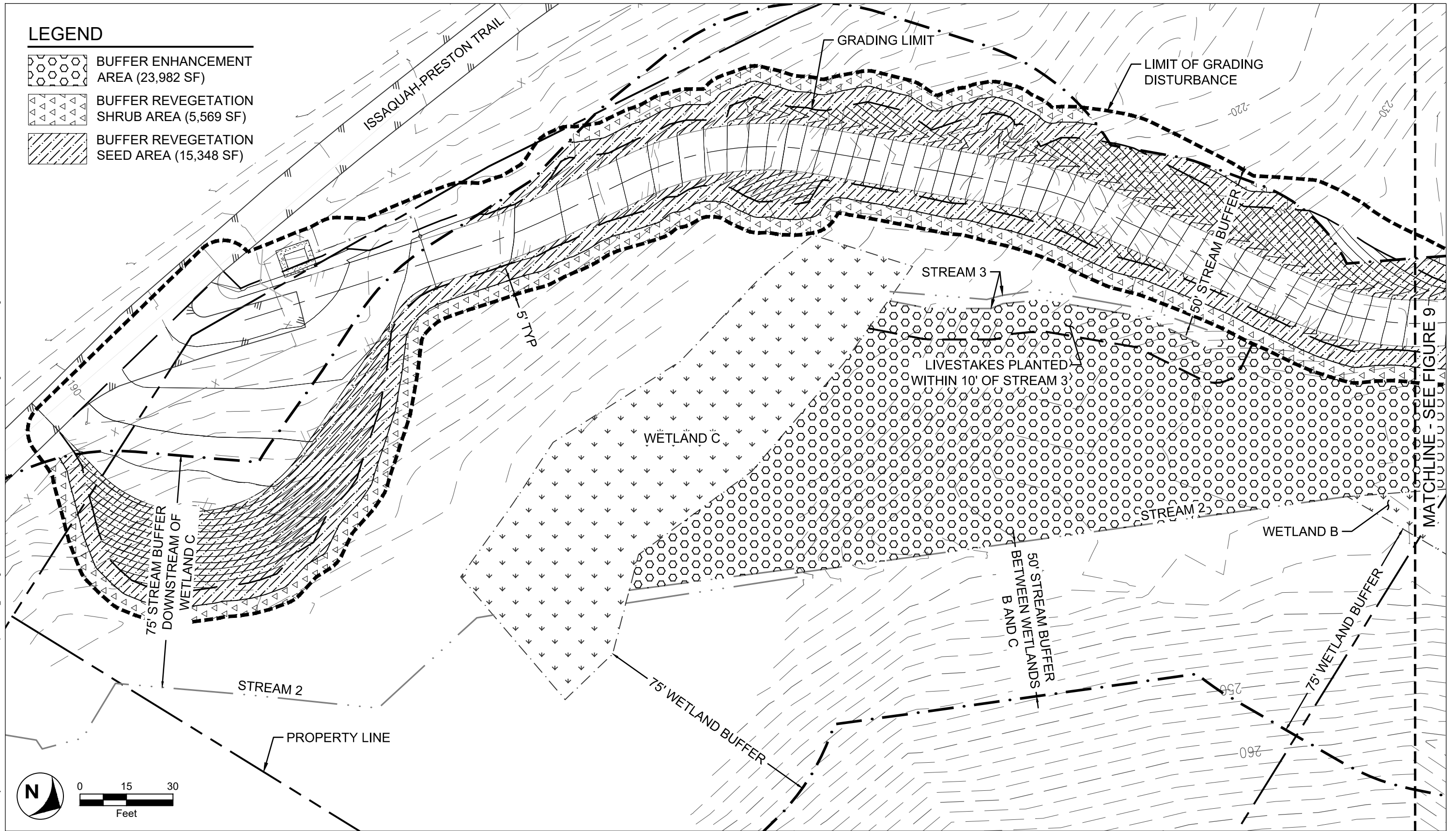
CONIFEROUS TREE REMOVAL TABLE		
TREE #	SPECIES	SIZE (DBH)
C26	DOUGLAS FIR	13
C27	DOUGLAS FIR	13
C28	DOUGLAS FIR	14
C29	DOUGLAS FIR	12
C30	DOUGLAS FIR	15
C31	DOUGLAS FIR	9
C32	DOUGLAS FIR	17
C33	DOUGLAS FIR	16
COMBINED DBH TOTAL:		410

South Issaquah Booster Pump Station (SPAR)

Figure 7
TREE IMPACTS TABLE



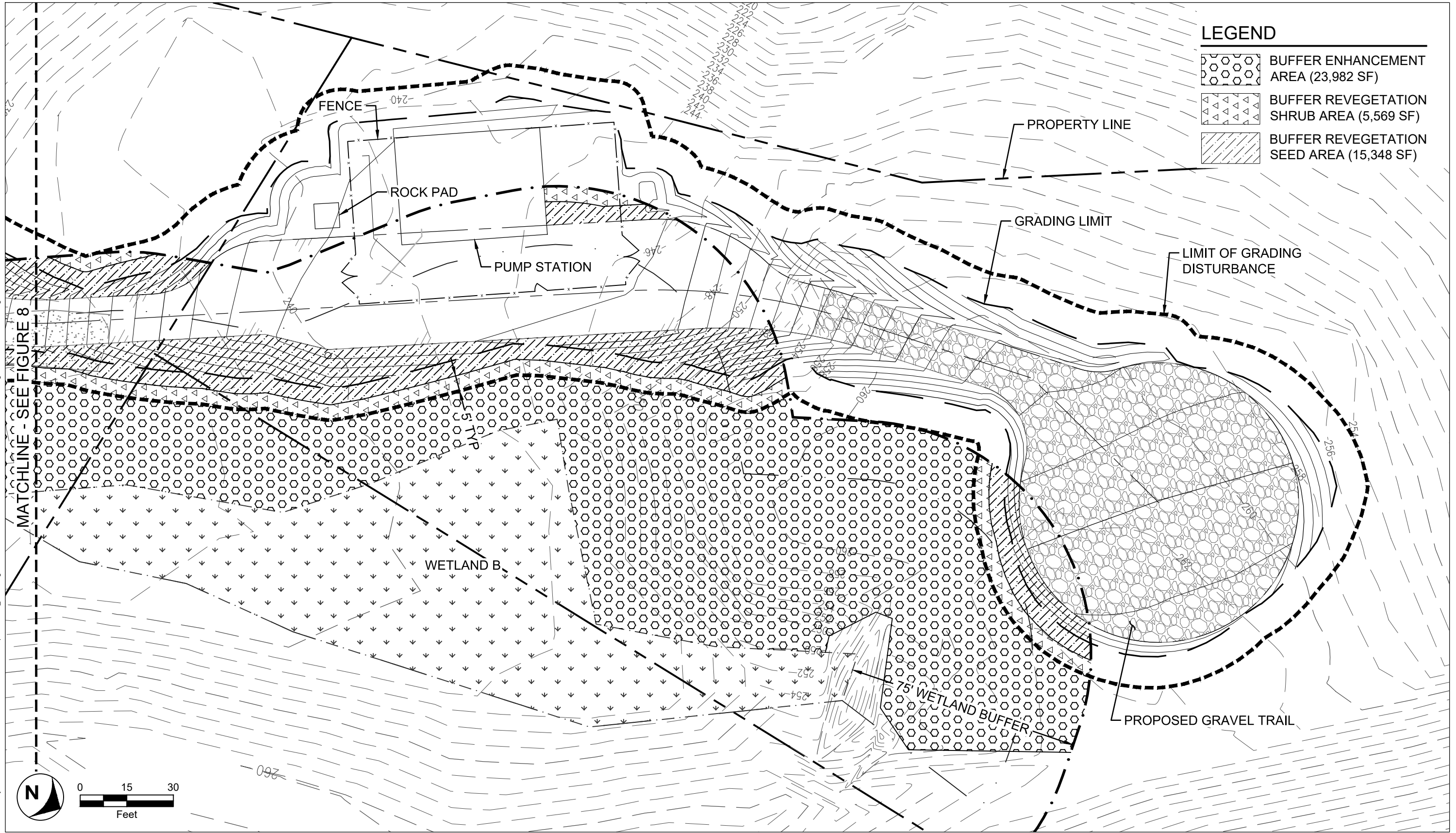
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South Issaquah Booster Pump Station (SPAR)

Figure 8
BUFFER MITIGATION PLAN SOUTH

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South Issaquah Booster Pump Station (SPAR)

Figure 9
BUFFER MITIGATION PLAN NORTH

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BUFFER ENHANCEMENT PLANTING NOTES

CLEARING AND TREE PROTECTION

1. USING HAND-HELD EQUIPMENT, REMOVE ALL INVASIVE SPECIES FROM THE MITIGATION AREA PRIOR TO INSTALLATION USING METHODS APPROVED BY THE STATE OF WASHINGTON NOXIOUS WEED CONTROL BOARD. SPECIFIC SPECIES TO BE REMOVED INCLUDE HIMALAYAN BLACKBERRY (RUBUS ARMENIACUS), ENGLISH IVY (HEDERA HELIX), ENGLISH HOLLY (ILEX AQUIFOLIUM), KNOTWEED (POLYGONUM SPP.), AND REED CANARYGRASS (PHALARIS ARUNDINACEA).
2. PRESERVE AND PROTECT ALL EXISTING WETLANDS, TREES AND VEGETATION NOT DESIGNATED FOR REMOVAL. PROVIDE, ERECT AND MAINTAIN TEMPORARY FENCING TO PREVENT ACCESS TO EXISTING WETLANDS OR WETLAND BUFFERS BY ANY VEHICLES.
3. DO NOT DRIVE OR PARK ANY VEHICLES OR EQUIPMENT, STORE MATERIALS, STOCKPILE SOIL OR GRAVEL, OR DISPOSE OF ANY CONSTRUCTION OR WASTE MATERIAL WITHIN EXISTING WETLANDS OR WETLAND BUFFER OR NEAR NEWLY INSTALLED PLANTS. RESTRICT FOOT TRAFFIC WITHIN PROTECTED AREAS.

PLANTING

4. ASSUME TRIANGULAR SPACING FOR ALL PLANT SPACING ON PLANTING SCHEDULES.
5. PLANTING AREAS SHOULD BE STAKED IN THE FIELD FOR ACCEPTANCE BY THE ENGINEER PRIOR TO INSTALLATION.
6. PRIOR TO PLANTING, PLACE ALL PLANTS AS INDICATED ON THE PLANS, OR MARK EACH LOCATION WITH WOOD STAKES OR COLOR WIRE FLAGS MARKED WITH THE FIRST TWO LETTERS OF BOTH PLANT GENUS AND SPECIES (E.G. PH CA FOR PHYSOCARPUS CAPITATUS). NO PLANTING HOLES SHALL BE DUG OR BACKFILLED WITHOUT PRIOR APPROVAL OF ENGINEER. NOTIFY ENGINEER A MINIMUM OF 72 HOURS BEFORE PLANTING TO ALLOW AMPLE TIME TO ADJUST PLANT LOCATIONS. PROVIDE EXTRA STAKES OR FLAGS SUFFICIENT TO MARK LOCATIONS OF PLANTS NOT LOCATED ON PLAN.
7. APPLY BUFFER REVEGETATION SEED MIX ALONG ROADSIDE AREAS AS SHOWN ON PLANS AND IN BUFFER AREAS WHERE PLANTING HAS NOT BEEN LOCATED BUT HAS BEEN IMPACTED DURING PLANTING AND GRADING WORK.

SOIL TREATMENT & PLANTING SEQUENCE

1. CLEAR AND GRUB, TAKING CARE TO REMOVE LARGE ROCKS AND THICKETS
2. COMPOST SOIL AMENDMENT IN AREAS TO BE PLANTED OR SEEDED
3. SEED, MULCH, AND EROSION CONTROL BLANKET
4. INSTALL 3" DEPTH WOOD CHIP MULCH IN ALL PLANTING AREAS EXCEPT LIVE STAKE AREAS
5. INFILL PLANTING: TREE AND SHRUBS

BUFFER ENHANCEMENT PLANTING SCHEDULE (23,982 SF)

BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QUANTITY
TREES:				
PICEA SITCHENSIS	SITKA SPRUCE	1 GAL.	10' O.C.	53
PSEUDOTSUGA MENZIESII	DOUGLAS FIR	1 GAL.	10' O.C.	53
RHAMNUS PURSHIANA	CASCARA	1 GAL.	10' O.C.	52
SALIX LUCIDA	PACIFIC WILLOW	1 GAL.	10' O.C.	52
THUJA PLICATA	WESTERN RED CEDAR	1 GAL.	10' O.C.	53
SHRUBS:				
ACER CIRCINATUM	VINE MAPLE	1 GAL.	5' O.C.	131
LONICERA INVOLUCRATA	TWINBERRY	1 GAL.	5' O.C.	132
MAHONIA AQUIFOLIUM	TALL ORGEON GRAPE	1 GAL.	5' O.C.	131
OEMLERIA CERASIFORMIS	INDIAN PLUM	1 GAL.	5' O.C.	131
PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	1 GAL.	5' O.C.	131
RIBES LACUSTRE	PRICKLY CURRANT	1 GAL.	5' O.C.	131
LIVESTAKES:				
SALIX HOOKERIANA	HOOKER'S WILLOW	LIVESTAKE	3' O.C.	54
SALIX LASIANDRA	PACIFIC WILLOW	LIVESTAKE	3' O.C.	53
SALIX SITCHENSIS	SITKA WILLOW	LIVESTAKE	3' O.C.	54

BUFFER REVEGETATION SHRUB PLANTING SCHEDULE (5,569 SF)

BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QUANTITY
SHRUBS:				
ACER CIRCINATUM	VINE MAPLE	1 GAL.	5' O.C.	30
LONICERA INVOLUCRATA	TWINBERRY	1 GAL.	5' O.C.	30
MAHONIA AQUIFOLIUM	TALL ORGEON GRAPE	1 GAL.	5' O.C.	30
OEMLERIA CERASIFORMIS	INDIAN PLUM	1 GAL.	5' O.C.	29
PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	1 GAL.	5' O.C.	30
RIBES LACUSTRE	PRICKLY CURRANT	1 GAL.	5' O.C.	30

BUFFER REVEGETATION SEED SCHEDULE (15,348 SF)

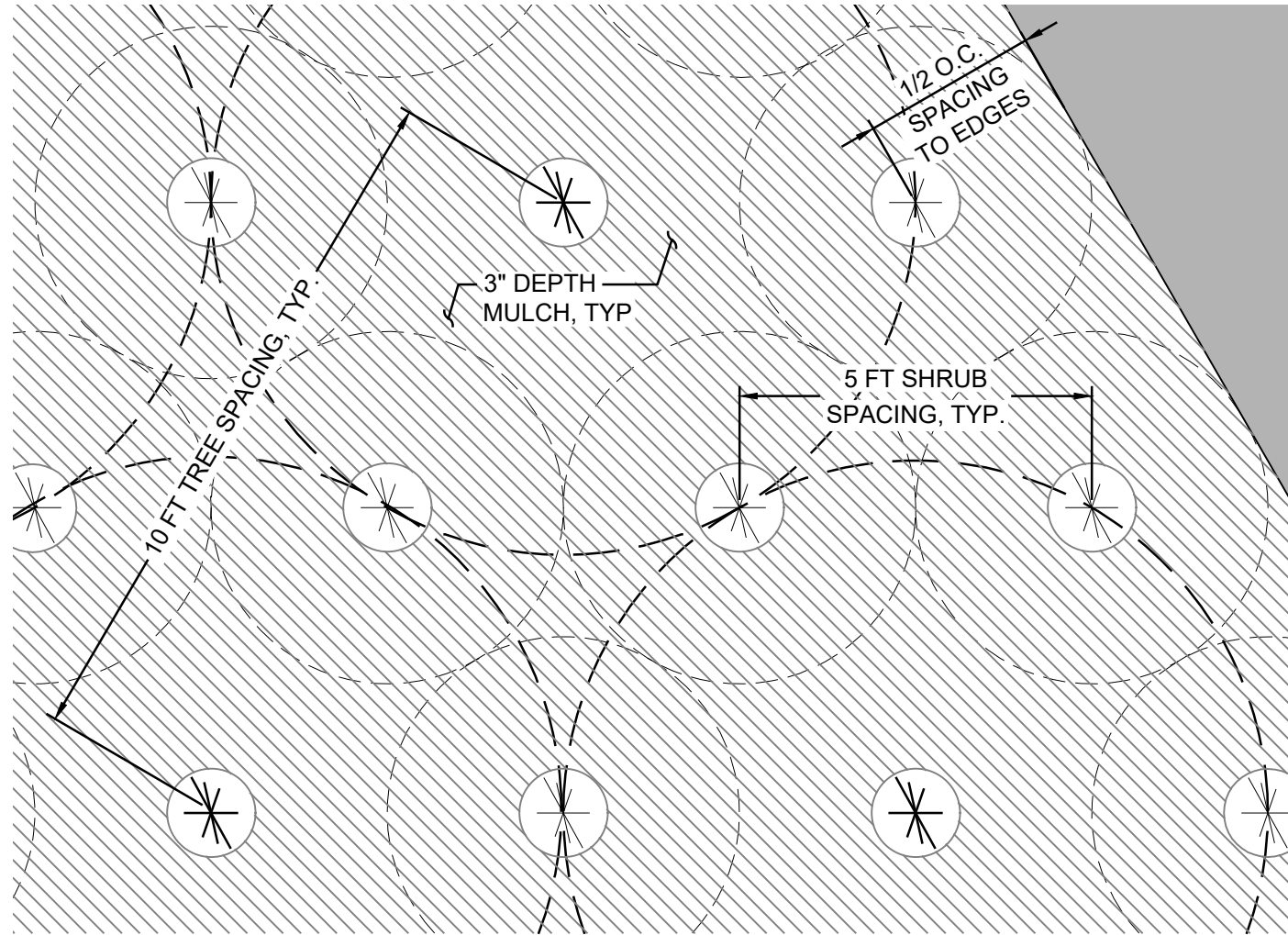
BOTANICAL NAME	COMMON NAME	DISTRIBUTION	RATE
AGROSTIS EXARATA	SPIKE BENTGRASS	10%	APPLY 20 LBS. PER ACRE
DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS	15%	
DESCHAMPSIA ELONGATA	SLENDER HAIRGRASS	20%	
HORDEUM BRACHYANTHERUM	MEADOW BARLEY	55%	

South Issaquah Booster Pump Station (SPAR)

Figure 10
BUFFER MITIGATION PLANTING
SCHEDULES AND NOTES



DWG: U:\Projects\SEA\16xxxx\160917.00 S SPAR Booster Pump Station\08_CADD\Drawings\FINAL MIT FIGURES\11 BUFFER MITIGATION PLANTING DETAILS.dwg USER: Sona Greenberg PLOT DATE: 12/31/2019 9:48:24 AM



NOTES:

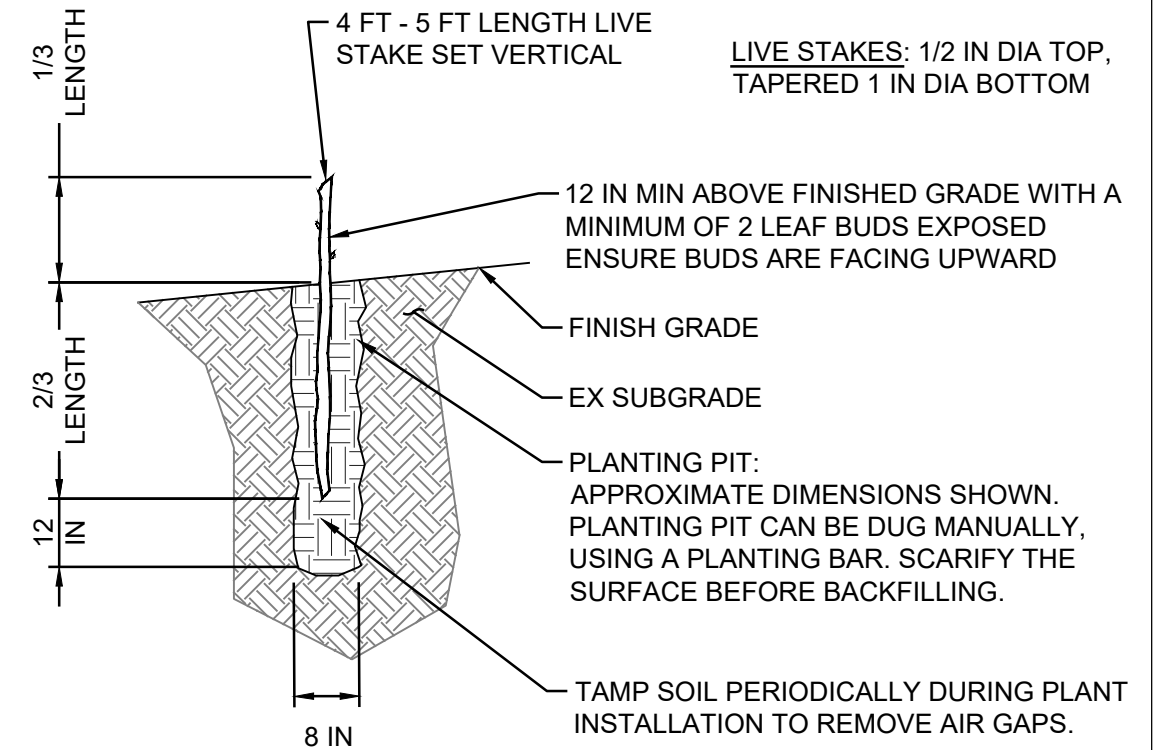
1. PLANTING LAYOUT IS CONCEPTUAL AND INTENDED TO SHOW GROUPINGS OF SIMILAR SPECIES OF PLANTS.
3. GROUP EACH SPECIES IN ODD-NUMBERED CLUSTERS OF 3 TO 9 EXCEPT WHERE NOTED OTHERWISE.
4. PLANT LAYOUT AND TRIANGULAR SPACING MAY BE ADJUSTED TO MEET FIELD CONDITIONS WITH THE ACCEPTANCE OF THE ENGINEER.
5. SURROUND EACH TREE WITH SHRUBS, RETAINING THE 5 FT O.C. SPACING OF THE SHRUBS AS SHOWN IN THIS DETAIL.

1 PLANTING LAYOUT

DETAIL

SCALE: NOT TO SCALE

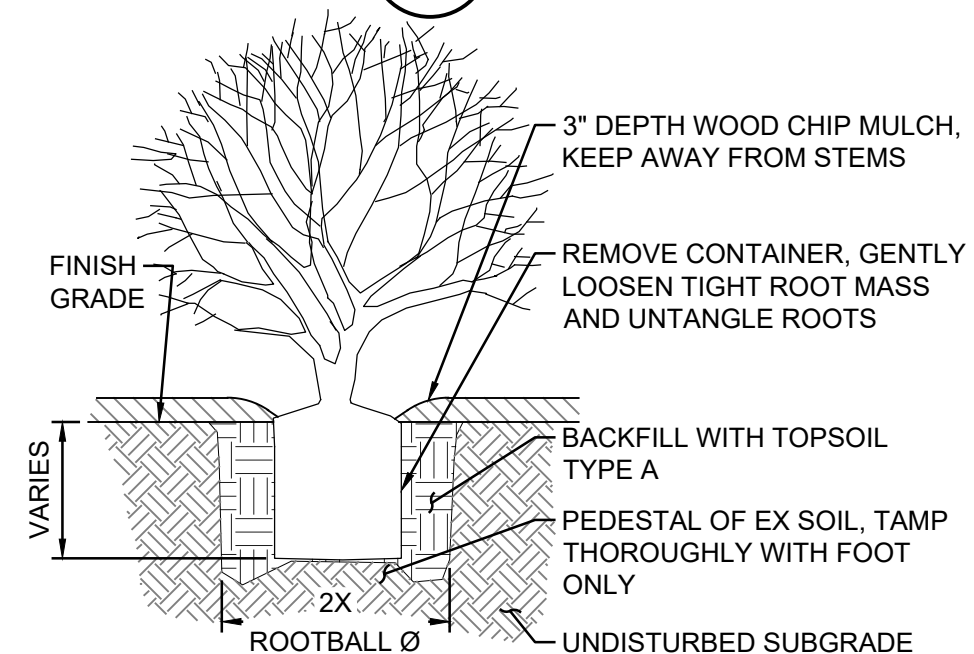
NOTE: SEE FIGURE 14 FOR SLOPE PLANTING DETAIL.



2 LIVESTAKE PLANTING

DETAIL

SCALE: NOT TO SCALE



3 CONTAINER PLANTING

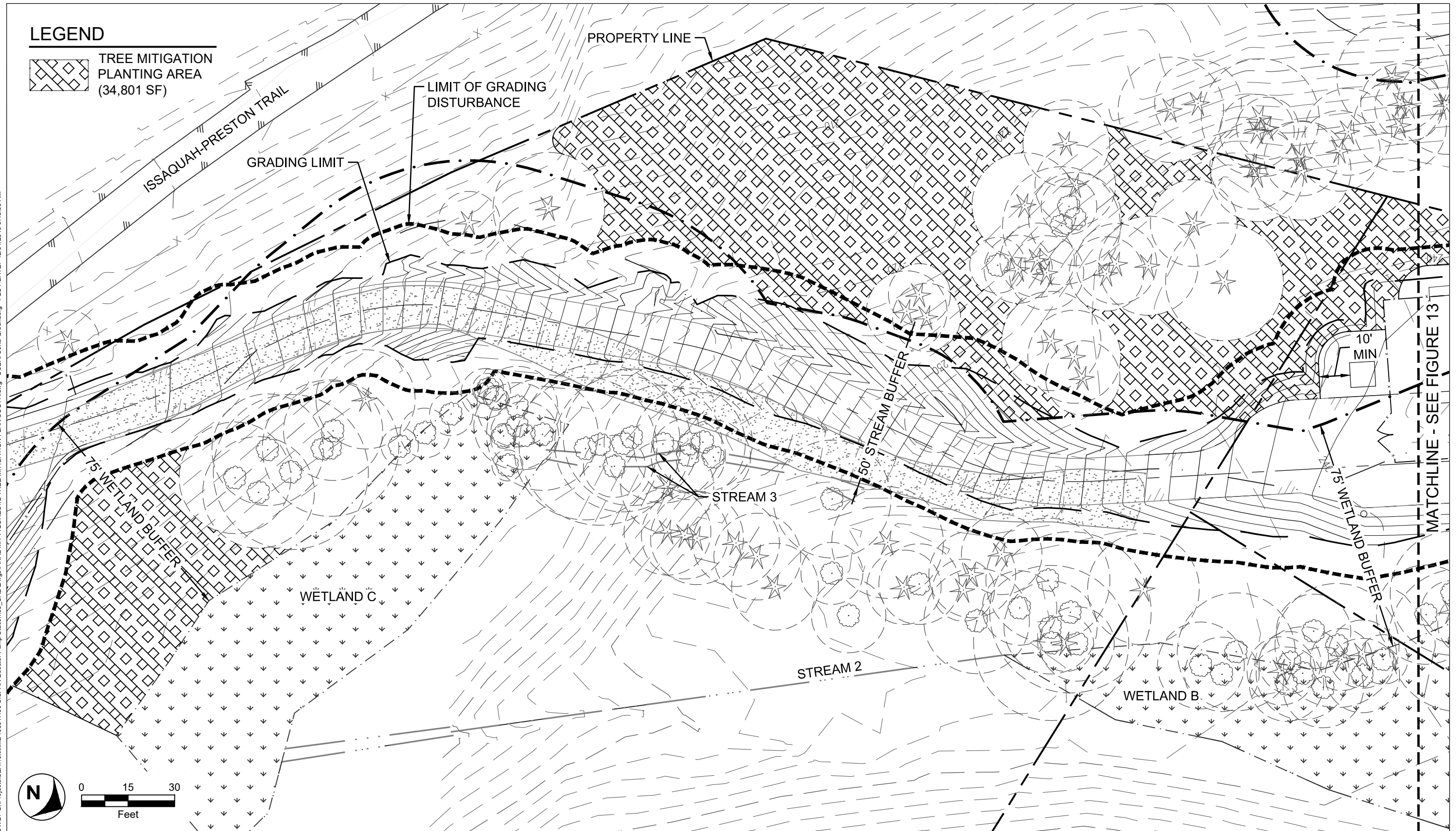
DETAIL

SCALE: NOT TO SCALE

South Issaquah Booster Pump Station (SPAR)

Figure 11
BUFFER MITIGATION PLANTING
DETAILS

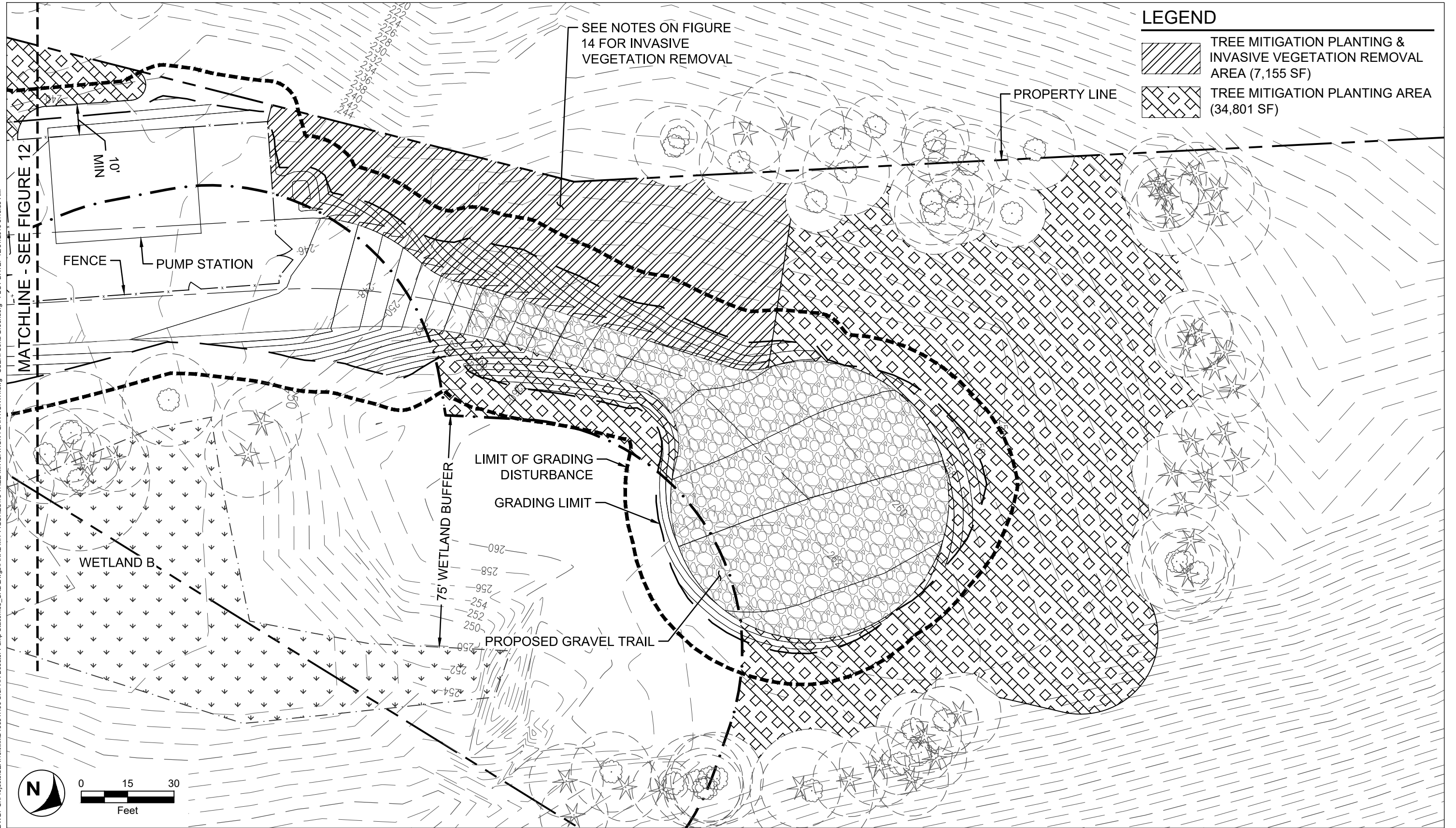
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South Issaquah Booster Pump Station (SPAR)

Figure 12
TREE MITIGATION PLAN SOUTH

DWG: U:\Projects\SEA\16xxxx\1610917.00 S SPAR Booster Pump Station\08_CADD\Drawings\FINAL MIT FIGURES\13 TREE MITIGATION PLAN NORTH.dwg USER: Sona Greenberg PLOT DATE: 12/31/2019 9:48:53 AM



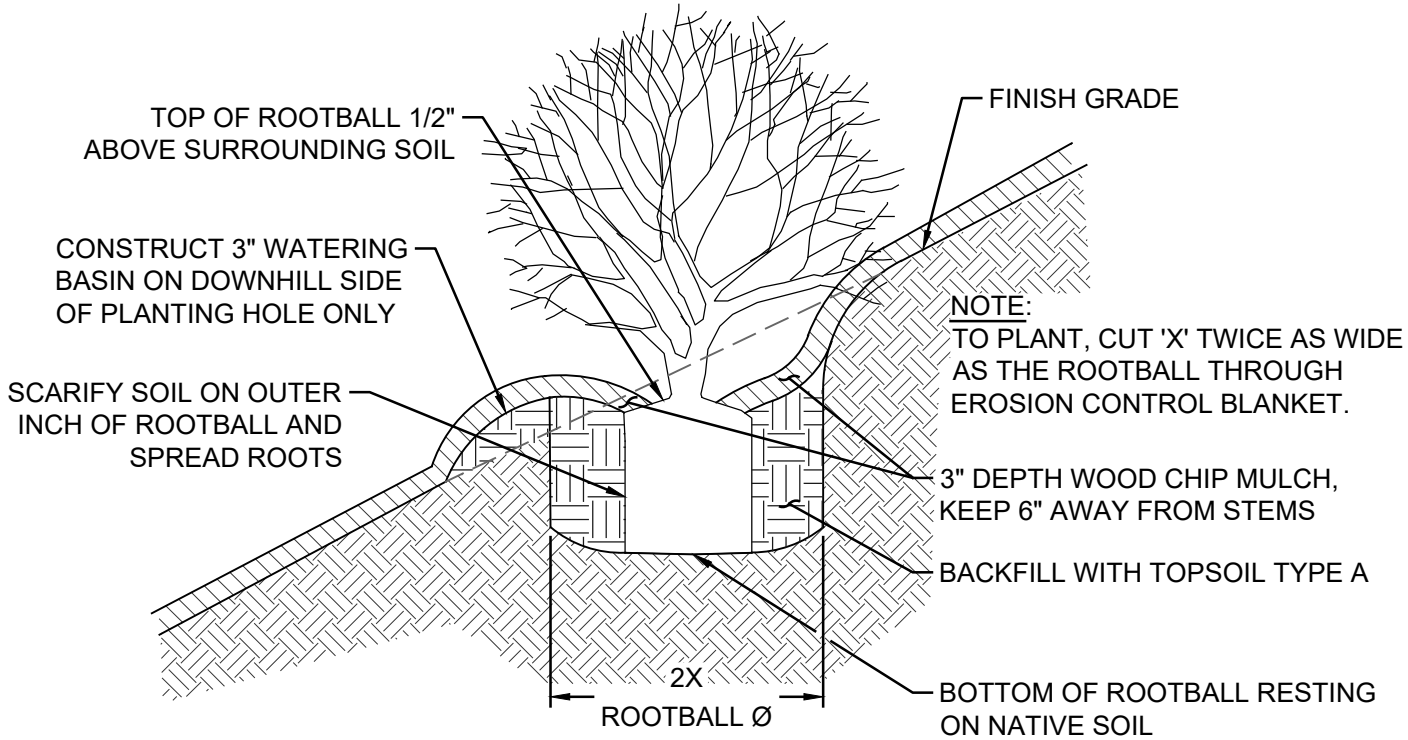
South Issaquah Booster Pump Station (SPAR)

Figure 13
TREE MITIGATION PLAN NORTH

DWG: U:\Projects\SEA\16xxxx\160917.00 S SPAR Booster Pump Station\08_CADD\08gs\FINAL MIT FIGURES\14 TREE MITIGATION SCHEDULE AND DETAILS.dwg USER: Sona Greenberg PLOT DATE: 12/31/2019 9:48:59 AM

TREE MITIGATION PLANTING NOTES

- 1. USING HAND-HELD EQUIPMENT, REMOVE ALL INVASIVE SPECIES FROM THE "TREE MITIGATION PLANTING & INVASIVE VEGETATION REMOVAL" ZONE OF THE MITIGATION AREA PRIOR TO INSTALLATION USING METHODS APPROVED BY THE STATE OF WASHINGTON NOXIOUS WEED CONTROL BOARD. SPECIFIC SPECIES TO BE REMOVED INCLUDE HIMALAYAN BLACKBERRY (RUBUS ARMENIACUS) AND SCOTCH BROOM (CYTISUS SCOPARIUS).
- 2. PRESERVE AND PROTECT ALL EXISTING WETLANDS, TREES AND VEGETATION NOT DESIGNATED FOR REMOVAL. PROVIDE, ERECT AND MAINTAIN TEMPORARY FENCING TO PREVENT ACCESS TO EXISTING WETLANDS OR WETLAND BUFFERS BY ANY VEHICLES.
- 3. DO NOT DRIVE OR PARK ANY VEHICLES OR EQUIPMENT, STORE MATERIALS, STOCKPILE SOIL OR GRAVEL, OR DISPOSE OF ANY CONSTRUCTION OR WASTE MATERIAL WITHIN EXISTING WETLANDS OR WETLAND BUFFER OR NEAR NEWLY INSTALLED PLANTS. RESTRICT FOOT TRAFFIC WITHIN PROTECTED AREAS.
- 4. SEED SOURCE MUST BE AS LOCAL AS POSSIBLE, AND PLANTS MUST BE NURSERY PROPAGATED UNLESS TRANSPLANTED FROM ON-SITE AREAS APPROVED FOR DISTURBANCE.
- 5. PLANTING AREAS AND GENERAL PLANT LAYOUT SHOULD BE CONFIRMED BY CONTRACTOR WITH CITY BIOLOGIST PRIOR TO PLANT INSTALLATION.
- 6. SUBSEQUENT TO PLANT DELIVERY, BUT PRIOR TO PLANT INSTALLATION, THE CITY WILL INSPECT THE PLANTS TO ENSURE PLANT QUANTITIES, SIZES, AND HEALTH ARE ADEQUATE AND PER THE PLANTING PLAN. UNLESS THE CITY SPECIFICALLY AUTHORIZES ANY CHANGES OR SUBSTITUTIONS, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL PLANT TYPES AND NUMBERS PER THE PLANTING PLAN.
- 7. PLANT SIMILAR SPECIES TOGETHER IN CLUSTERS OF 3, 5, 7, OR 9. DO NOT PLANT ALL OF ONE SPECIES IN ANY PLANTING AREAS.
- 8. IMMEDIATELY AFTER PLANT INSTALLATION, ALL INDIVIDUAL TREES WILL BE MARKED WITH BRIGHTLY COLORED FLAGGING, TO ALLOW FOR EASY IDENTIFICATION DURING AS-BUILT INSPECTION AND SUBSEQUENT MONITORING EFFORTS.
- 9. IMMEDIATELY FOLLOWING PLANT INSTATLLATION THE CITY, OR ITS DESIGNEE, WILL CONDUCT AN AS BUILT SURVEY TO ENSURE ALL TREE PLANTING WAS INSTALLED ACCORDING TO THE PLANTING PLAN. THE CONTRACTOR IS REPSONSIBLE FOR INSTALLING PLANT TYPES AND NUMBERS PER THE PLANTING PLAN.



1 SLOPE PLANTING
- DETAIL SCALE: NOT TO SCALE

NOTE: SEE FIGURE 11 FOR CONTAINER PLANTING DETAIL.

TREE MITIGATION PLANTING SCHEDULE

BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QUANTITY
ACER MACROPHYLLUM	BIG LEAF MAPLE	1 GAL.	10' O.C.	50
ACER MACROPHYLLUM	BIG LEAF MAPLE	2 GAL.	12' O.C.	50
PSEUDOTSUGA MENZIESII	DOUGLAS FIR	1 GAL.	10' O.C.	200
PSEUDOTSUGA MENZIESII	DOUGLAS FIR	2.GAL.	12' O.C.	110
MAXIMUM AREA ALLOCATED FOR TREE MITIGATION = 41,956 SF				
MINIMUM AREA REQUIRED FOR PROPOSED TREES AT PRESCRIBED TREE SPACING INTERVALS = 41,616 SF				

South Issaquah Booster Pump Station (SPAR)

Figure 14
TREE MITIGATION SCHEDULE AND DETAILS

